



Mississippi National River
and Recreation Area



Wilderness
Inquiry

Urban Wilderness Canoe Adventures (UWCA)

Mississippi River Connections Field Trip

Route: North Mississippi Regional
Park to the East River Flats

Suggested Grade Level: 5th

Timeframe: 4½ hours

Distance: Approximately 5.5 mi.

Trip Theme: Students are
connected to the Mississippi River.
The river provides the water they
drink, it has shaped events that built
the city of Minneapolis, and it is
home to wildlife.

Key Learning Objectives:

1. Students will identify how they are connected to the Mississippi River--directly as in the river providing the student's drinking water, and indirectly, such as living in a city built here because of the waterpower provided by St. Anthony Falls.
2. Students will observe the storm drain outfalls along the river as well as the litter in the river, and they will begin to understand that streets are connected to the river via the storm drains.
3. Students may identify how their actions affect the river.

Overview of Field Experience:

This trip begins above the head of barge navigation, on a shallow stretch of river close to the water intakes for Minneapolis and Saint Paul. From here, students will canoe 5.5 miles down the Mississippi River. The first .75 miles of the trip is through a natural and wooded shoreline section of the river. A heron rookery and evidence of beaver activity is visible within the first .5 mile. At the turn of the century, this upper section of the route was busy with lumber and sawmill activities. While no lumber mills remain from this time, remains from the booms that once caught the logs might be seen in the water.

The next 3 miles of river are a mix of industrial sites and parkland. The parkland is a result of the conversion of industrial sites. Other industrial sites have been converted to public facilities (Gluek Brewery, now a library and the Washburn A Mill, now the Mill City Museum). Current industrial use includes sites used for road salt, coal, aggregate and scrap metal storage and processing. Students may see barges being loaded and unloaded. A lunch break will be taken at Boom Island Park, which was once a lumbering site. Bathrooms, water and picnic shelters are available in the park.

Leaving Boom Island, students pass through the Saint Anthony Falls Historic District, seeing the remains of the giant water-powered flourmills, the falls, historic bridges, and the outdoor stream lab of the NSF funded National Center for Earth Surface Dynamics. A trip highlight will include passing through two locks before entering the gorge.



The trip will end at the East River Flats of the University of Minnesota.

Minnesota Academic Standards (Science, Language Arts, and Social Studies): The field trip will either address or enable classroom involvement with the following standards (key standards in bold).

Science Standards

- 5.1.3.4.2- Create and analyze different kinds of maps....
- 5.2.2.1.2- Motion- An object's motion is affected by forces...identify force...
- 5.3.1.2.2- Explain how slow processes such as water erosion...form features of Earth's surface.
- 5.3.4.1.1- Identify renewable and non-renewable energy....
- 5.3.4.1.3- Compare the impact of individual decisions....
- 5.4.2.1.2- Explain what would happen to a

system...if one of its parts were changed...

- 5.4.4.1.1- Give examples of beneficial and harmful human interaction with natural systems.

Math Standards

- 5.1.1.4- Solve real world and mathematical problems requiring addition, subtraction....
- 5.2.1.1- Create and use rules, tables, spreadsheets and graphs to describe patterns...
- 5.3.2.2- Use various tools and strategies to measure the volume and surface area of objects...

Recommended Classroom Activities (Priorities in Bold):

Journaling Project

Students will make a journal in class before the trip. On the front cover, they will create a collage of their impressions of river nature or what they expect to see on the trip. Collage materials will be supplied by UWCA. The journals will then be used to take notes about their experiences on the trip. Students will be asked to answer the following open-ended question related their river impressions/experiences:

5th Grade Mississippi River Connections question: *What are some ways that you are connected to the Mississippi River?*

The students will write their responses in their journals before the trip. Bring journals and supplies along on the trip so that students may write notes or draw pictures. They may finish their writing in a trip follow-up session in class. The intent of this journaling exercise is to allow students to "Live Inside the Questions", and to analyze what they have learned.

In a follow-up class session, students will complete the back covers of their journals by doing another collage of their post-trip impression. Students may use the materials provided by the UWCA or draw their own images.

Pre-trip Classroom Activities

Two additional activities are recommended for all students, ideally before the canoe trip. The DNR's Young Naturalist article "A Most Amazing River", is a good introduction to the Mississippi River in Minnesota for all subject areas. The locking animation at the Mississippi National River and Recreation Area's website will help clarify for students the process of going through a lock.



“A Most Amazing River”

Minnesota Conservation Volunteer Magazine, Young Naturalist

www.mndnr.gov/young_naturalists/mississippi

This publication by the MN DNR is a good introduction to the upper Mississippi River. The illustrated article briefly addresses the natural, historical, and cultural aspects of the Mississippi River in MN. The available teacher's guide includes vocabulary and reading for content activities. There are many other Young Naturalist articles on a variety of subjects suitable for high interest reading. Most also have Teacher's Guides.

The Young Naturalist website is:

http://www.dnr.state.mn.us/young_naturalists/index.html

Locking Through Interactive

<http://www.nps.gov/miss/forteachers/teacherresources.htm>

Students become the lockmaster, opening and closing gates or valves allowing a boat to pass through a lock. A similar animation is available through the Army Corps of Engineers at <http://www.mvp.usace.army.mil/navigation/default.asp?pageid=166>

The following activities address Social Studies (Lumber and Sawmill activities and Forest, Fields and Falls), Science (Branching Out), Geography (Map the Mississippi River/Watershed), and Math (Lumber and Sawmill Activities) subject areas, although most activities are multi-disciplinary. This section should probably go after the title and before the activities in the Additional Activities section rather than before this single activity.

Post-trip Classroom Activities

Map the Mississippi River Watershed and the Mississippi River in the Twin Cities

In these two separate activities, students will map the Mississippi watershed from its sources to the Gulf of Mexico to gain a better understanding of watersheds or will map the Mississippi River through the Twin Cities using various resources to find historical and geographic landmarks.

<http://www.nps.gov/miss/forteachers/teacherresources.htm>

Detailed Route Description and Trip Activities:

Start: The trip will convene at North Mississippi Regional Park. Wilderness Inquiry staff will provide safety, canoeing, and activity orientation. Emphasis will be placed on the trip as a “Leave No Trace” experience. Boat assignments will also be made at this time. Boat captains (sterners) or pod leaders (lead groups of 3 canoes) provide introduction to route activities including the river's transformation from a natural place to an industrial river once used for lumbering, sawmills, and flour mills. The river still retains traces of its past, both natural and industrial.



Once on the river, students should note the water intake plant for Minneapolis (just across from the park) and the Great Blue Heron rookery at the far end of the park. The intent of these observations is to show students how their lives are connected to the Mississippi River, not only as their source of drinking water, but as a system that supports wildlife and local businesses. Students will also see how runoff from the streets in their neighborhoods can have an impact on the river.

This will be the first time many students are in a boat or on the river. Direct the students to make note of what they see, hear, smell, or feel. What do they find interesting? What are they curious about? How is the river different when viewed from a boat vs. from land? What do they find surprising? What words describe a site? Students will use this information at lunch when they will be asked to draw one of their observations and talk about it.

You may take note of the following sites:

- Island with Heron Rookery, Shingle Creek mouth, Camden Bridge, CP Rail Bridge, Holcomb Cement, and the Port of Minneapolis.
- Riverside Power plant, Marshal Concrete, Siwek Lumber, islands, Marshall Terrace Park, and the Lowry Avenue Bridge.
- American Iron, Gluek Park, Soo Line Bridge, Grain Belt Brewery/Bottineau Library, and the Broadway Bridge.
- Scherer Brothers Lumber, Plymouth Ave Bridge, and Boom Island.

Lunch: A lunch break will be taken at Boom Island. Canoes will land on the downstream end of the park, not the landing, which is too hard on the canoes. Toilets and water are available at the bathroom pavilions on the upstream end of the park. Picnic tables and pavilions are available. Following lunch, we will pick up any litter and waste and gather by pod (or by boat) for an activity.

Ranger Kathy will provide note cards and colored pencils for the students. They will have 10-15 minutes to draw a picture of one their observations. The activity will begin by looking at a few sketches made by early river explorers such as George Catlin. The activity will end with a discussion of the students' observations. Once back at school, students can continue working on the drawing. The drawings can be combined to form a mural. Some students may prefer writing about what they observed. Poetry, written verse, or descriptive writing may be used. Another option is to incorporate writing by making the note cards into postcards. Students may write a message about the trip on the side opposite the drawing, add an address, stamp, and mail the postcard.

After lunch, sites of interest are closely spaced in the remaining 3-mile stretch of the tour. After leaving Boom Island, students will enter the St. Anthony Falls Historic District. We will pass under the site of the first bridge on the Mississippi River, the Hennepin Avenue Bridge. Students will pass through two locks: one on the upper St. Anthony Falls and another on lower St. Anthony Falls. As the canoes move through the locks,



students will see remains of the turn of the century flourmill industry at Mill Ruins Park, the Mill City Museum, the Pillsbury A Mill, and St. Anthony Falls, which provided the power for the mills. As students pass through the second lock, they will pass under the new 35W Bridge, the 10th Avenue Bridge, and a former Railroad bridge, which is now a public pedestrian bridge.

Sites of interest in this area include:

- Bassett Creek mouth, BNSF Bridge, Nicollet Island, Hennepin Avenue Bridge, Downtown Minneapolis, the Post Office, and the Third Avenue Bridge
- St. Anthony Falls, Upper St. Anthony Lock, Milling District, the Mill City Museum, the Stone Arch Bridge, University of Minnesota Hydro lab, and the Xcel Energy plant.
- Guthrie Theater, the Old 10th Avenue Bridge pier, and the big storm sewer outlet at MRP.
- Lower St. Anthony Lock, 35W Bridge, 10th Avenue Bridge, and the pedestrian bridge.
- Bohemian Flats and the old 35W bridge parts.
- Storm sewer outlets, barges

Finish: Our trip ends at East River Flats, on river mile 853 at the University of Minnesota and Women's Rowing Club. After the landing, we will work together to move the canoes and gear off the river. We'll gather together to share final reflections on the day's paddling. What will we remember about this river? What connections have we observed or learned? Why should we care about it? What did we learn about ourselves?

Buses will pick up groups at this landing site at the designated times. If personal vehicles have been left at the launch site, teachers will have to make special arrangements to pick them up.

Additional Classroom Activities and Learning Resources

The following activities address Social Studies (Lumber and Sawmill activities and Forest, Fields and Falls), Science (Branching Out), Geography (Map the Mississippi River/Watershed), and Math (Lumber and Sawmill Activities) subject areas, although most activities are multi-disciplinary

Lumber & Sawmill Activities

These reading, math, and social studies activities focus on the historic lumber and sawmill industries of Minneapolis. An illustrated journal describes, through the eyes of a child, the lumber and sawmill activity at St. Anthony Falls in 1917. Writing activities include making a postcard, reading a very short newspaper article about a 1920 lumber mill fire and then writing a newspaper article based on student experience.



Math activities include simple calculations and graphing.

<http://www.nps.gov/miss/forteachers/teacherresources.htm>

Forest, Fields and Falls- MHS site

This on-line activity explores the lumber, sawmill, flour mill and farming industries in the early 1900s through audio and cartoon type drawings.

<http://discovery.mnhs.org/ConnectingMN/>

Branching Out- Project WET

Students will build a model landscape to investigate how water flows. This is a fun and easy introductory lesson on the concept of watersheds. This lesson is part of Project WET (Water Education for Teachers). The local Project WET coordinator is April Rust, DNR Division of Waters, 500 Lafayette Road, St. Paul, MN 55155, 651-259-5706, april.rust@state.mn.us

Depending on time and student interest, the following activities are among many more activities available at

<http://www.nps.gov/miss/forteachers/teacherresources.htm>

Online Learning: Surf the Mississippi at St. Anthony Falls

Students will explore the Internet to answer a series of questions about the history, geology, and geography of St. Anthony Falls and the Mississippi River in the Twin Cities including early uses of the river system.

Waterfall on the Move

These activities describe the recession of St. Anthony Falls and Mississippi River geology.

Birds, Beaks and Adaptation

The student will learn and describe how different kinds of bird beaks have adapted to feed on different foods within a specific habitat by using simple household tools.

While designed for classroom use, the reading section in this resource can also serve as background information for teachers regarding the history of the St. Anthony Falls area.

Teaching With Historic Places Lesson Plan: Wheat Farms, Flour Mills, and Railroads

Primary sources such as maps and images are used in lessons demonstrating the inter-dependence between flour mills, farming and railroads leading to the growth of the Twin Cities and Midwest.

<http://www.nps.gov/history/nr/twhp/wwwlps/lessons/106wheat/106wheat.htm>